

What is claimed is:

1. A data storage system comprising:

an original channel unit coupled to an original host;  
an original disk control unit coupled to said original  
channel unit for controlling writing process of data received  
from said original host;

an original disk unit coupled to said original disk  
control unit for storing data according to control of said  
original disk control unit;

a sub-channel unit coupled to a sub-host;

a sub-disk control unit coupled to said sub-channel unit  
and said original disk control unit for controlling writing  
process of data received from said sub-host and said original  
disk control unit; and

a sub-disk unit coupled to said sub-disk control unit  
for storing data according to control of said sub-disk control  
unit;

wherein said original disk control unit realizes data  
multiplexing of said original disk-unit and said sub-disk unit by sending  
written data received from said original host to said sub-disk  
control unit,

and wherein said original disk control unit sends a part  
of written data included in a plurality of written data received  
from said original host during a certain period to said sub-disk  
control unit, and does not send other written data included in  
a plurality of written data received from said original host during  
a certain period to said sub-disk control unit.

2. A data storage system according to claim 1, wherein said a part of written data which is sent to said sub-disk control unit is written data without being rewritten to said sub-disk control unit.

3. A data storage system according to claim 2 further comprising:

an interface cable which connects said original disk control unit to said sub-disk control unit,

wherein said a part of written data which is sent to said sub-disk control unit, is sent from said original disk control unit to said sub-disk control unit through said interface cable after said certain period in order to ensure consistency of data in said original disk control unit and said sub-disk control unit.

4. A data storage system according to claim 2,

wherein said original disk control unit comprises an access information management table which registers access places of said plurality of data-received from said original host, and wherein said original disk control unit manages said a part of written data which is sent to said sub-disk control unit by using said access management table.

5. A data storage system according to claim 2,

wherein said original disk control unit comprises a state management table which manages a data state in said original disk control unit and said sub-disk control unit, and wherein said original disk control unit and said sub-disk control unit use said state management table.

6. A data storage system according to claim 1,  
wherein other written data which is not sent to said  
sub-disk control unit, would be rewritten data to said sub-  
disk control unit if said other written data were sent to said  
sub-disk control unit.

7. A data storage system according to claim 6 further  
comprising an interface cable with connects said original disk  
control unit to said sub-disk control unit,

wherein data in said original disk control unit and said  
sub-disk control unit is ensured consistency with said  
other written data which is not sent to said sub-disk control  
unit, and is not sent from said original disk control unit to said  
sub-disk control unit through said interface cable after said  
certain period.

8. A data storage system according to claim 6,  
wherein said original disk control unit comprises an  
access information management received from said original host,  
and wherein said original disk control unit manages said  
other written data which is not sent to said sub-disk control  
unit by using said access management table.

9. A data storage system according to claim 6,  
wherein said original disk control unit comprises a state  
management table which manages a data state in said original disk  
control unit and said sub-disk control unit,

and wherein said original disk control unit can acquire  
a data state in said original disk control unit and said sub-disk

control unit by using said state management table.

10. A data storage system comprising according to claim 1, wherein said a part of written data which is sent to said sub-disk control unit is written data without being rewritten to said sub-disk unit.

11. A data storage system according to claim 10 further comprising an interface cable which connects said original disk control unit to said sub-disk control unit, wherein said a part of written data which is sent to said sub-disk control unit, is sent from said original disk control unit to said sub-disk control unit through said interface cable after said certain period in order to ensure consistency of data in said original disk control unit and said sub-disk control unit.

12. A data storage system according to claim 10, wherein said original disk control unit comprises an access information management table which registers access places of said a plurality of data received from said original host, and wherein said original disk control unit manages said a part of written data which is sent to said sub-disk control unit by using said access management table.

13. A data storage system according to claim 10, wherein said original disk control unit comprises a state management table which manages a data state in said original disk control unit and sub-disk control unit, and wherein said original disk control unit can acquire a data state in said original disk control unit and said sub-disk

control unit by using said state management table.

14. A data storage system according to claim 1,  
wherein said other written data which is not sent to said  
sub-disk control unit, would be rewritten data to said sub  
disk unit if said other written-data were sent to said sub  
disk control unit.

15. A data storage system according to claim 14 further  
comprising:

an interface cable which connects said original disk  
control unit to said sub-disk control -unit,

wherein said a part of written data which is sent to said  
sub-disk control unit, is sent from said original disk control  
unit to said sub-disk control unit through a said interface cable  
after said certain period in order to ensure consistency of data  
in said original disk control unit and said sub-disk control  
unit.

16. A data storage system according to claim 14, wherein said  
original disk control unit comprises an access information management table  
which registers access places of said plurality of data received from said  
original host, and wherein said original disk control unit manages said a part  
of written data which is sent to said sub-disk control unit by using said access  
management table.

17. A data storage system according to claim 14,  
wherein said original disk control unit comprises a state  
management table which manages data state in said original disk

control unit and said sub-disk control unit, and wherein said original disk control unit can acquire a data state in said original disk control unit and said sub-disk control unit by using said state management table.

18. A data storage system comprising:

an original disk control unit for controlling writing process of data received from a host;

an original disk unit coupled to said original disk control unit for storing data according to control of said original disk control unit;

a sub-disk control unit coupled to said sub-channel unit and said original disk control unit for controlling writing process of data received from said sub-host and said original disk control unit; and

a sub-disk unit coupled to said sub-disk control unit for storing data according to control of said sub-disk control unit;

wherein said original disk control unit realizes data multiplexing of said original disk unit and sub-disk unit by sending written data received from said host to said sub-disk control unit; and

wherein said original disk control unit sends a part of written data included in a plurality of written data received from said original host during a certain period to said sub-disk control unit, and does not send other written data included in a plurality of written data received from said host during a certain period to said sub-disk control unit.

19. A data storage system according to claim 18, wherein said a part of written data which is sent to said sub-disk control unit is written data without being rewritten to said sub-disk control unit.

20. A data storage system according to claim 19 further comprising

an interface cable which connects said original disk control unit to said sub-disk control unit,

wherein said a part of written data which is sent to said sub-disk control unit, is sent from said original disk control unit to said sub-disk control unit, through said interface cable after said certain period in order to ensure consistency of data in said original disk control unit and said sub-disk control unit.

21. A data storage system according to claim 19, wherein said original disk control unit comprises an access information management table which registers access places of said plurality of data received from said original host, and wherein said original disk control unit manages said a part of written data which is sent to said sub-disk control unit by using said access management table.

22. A data storage system according to claim 19, wherein said original disk control unit comprises a state management table which manages a data state in said original disk control unit and said sub-disk control unit, and wherein said original disk control unit can acquire a data state in said original disk control unit and said sub-disk control unit by using said state management table.

23. A data storage system according to claim 18, wherein said other written data which is not sent to said sub-disk control unit, would be rewritten data to said sub-disk control unit if said other written data were sent to said sub-disk control unit.

24. A data storage system according to claim 23 further comprising:

an interface cable which connects said original disk control unit to said sub-disk control unit,

wherein data in said original disk control unit and said sub-disk control unit is ensured consistency with said other written data which is not sent to said sub-disk control unit, and is not sent from said original disk control unit to said sub-disk control unit through said interface cable after said certain period.

25. A data storage system according to claim 23,

wherein said original disk control unit comprises an access information management table that registers access places of said plurality of data received from said original host,

and wherein said original disk control unit manages said other written data which is not sent to said sub-disk control unit by using said access management table.

26. A data storage system according to claim 23,

wherein said original disk control unit comprises a state management table which manages a data state in said original disk control unit and said sub-disk control unit,

and wherein said original disk control unit can acquire a data state in said original disk control unit and said sub-disk control unit by using said state management table.

27. A data storage system according to claim 18, wherein said a part of written data which is sent to said sub-disk control unit is written data without being rewritten to said sub-disk unit.



28. A data storage system according to claim 27 further comprising:

an interface cable which connects said original disk control unit to said sub-disk control unit,

wherein said a part of written data which is sent to said sub-disk control unit, is sent from said original disk control unit to said sub-disk control unit through said interface cable after said certain period in order to ensure consistency of data in said original disk control unit and said sub-disk control unit.

29. A data storage system according to claim 27, wherein said original disk control unit comprises an access information management table which registers access places of said plurality of data received from said original host,

and wherein said original disk control unit manages said a part of written data which is sent to said sub-disk control unit by using said access management table.

30. A data storage system according to claim 27, wherein said original disk control unit comprises a state management table which manages a data state in said original disk control unit and said sub-disk control unit,

and wherein said original disk control unit can acquire a data state in said original disk control unit and said sub-disk control unit by using said state management table.

31. A data storage system according to claim 18, wherein said other written data which is not sent to said sub-disk control unit, would be

rewritten data to said sub-disk unit if said other written data were sent to said sub-disk control unit.

32. A data storage system according to claim 31 further comprising:

an interface cable which connects said original disk control unit to said sub-disk control unit, wherein said a part of written data which is sent to said sub-disk control unit, is sent from said original disk control unit to said sub-disk control unit through said interface cable after said certain period in order to ensure consistency of data in said original disk control unit and said sub-disk control unit.

33. A data storage system according to claim 31,

wherein said original disk control unit comprises an access information management table which registers access places of said plurality of data received from said original host,

and wherein said original disk control unit manages said a part of written data which is sent to said sub-disk control unit by using said access management table.

34. A data storage system according to claim 31,

wherein said original disk control unit comprises a state management table which manages a data state in said original disk control unit and said sub-disk control unit,

and wherein said original disk control unit can acquire a data state in said original disk control unit and said sub-disk control unit by using said state management table.